CUSTOMER PERCEPTIONS OF AI-DRIVEN INSURANCE SERVICES AND THEIR IMPACT ON INSURANCE PURCHASE INTENTIONS

SHORT SYNOPSIS

Submitted in partial fulfillment of the requirement of the degree of

DOCTOR OF PHILOSOPHY

by

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ABSTRACT

As more insurance companies start using AI, there's still a big question—do customers actually trust these services enough to buy insurance? This study will explore how customer perceptions of AI-driven insurance services influence their future intention to purchase insurance. It will help us understand whether the perception of consumer regarding the AI driven Insurance services directly affects their purchases decisions or it is mediated by the perceived usefulness and ease of using the services. Structured questionnaire will be used to collect the data from the respondents. Partial Least Squares Structural Equation Modeling (PLS-SEM) will be used to analyse the data. The findings of the study will help the Insurers design AI tools that are customer-friendly and help improve customer intentions to buy the insurance products. The study will also help in giving directions to the future studies with respect to the AI adoption in Insurance and other related services.

Keywords: Customer Perceptions, Artificial Intelligence, Insurance, Purchase Intentions, PLS-SEM.

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1. Introduction

1.1 Background

The integration of artificial intelligence (AI) in the insurance sector has revolutionized the way services are delivered, enhancing efficiency, customer experience, and operational capabilities. AI-driven services such as chatbots, automated claims processing, and personalized recommendations are transforming traditional insurance processes, offering customers more convenience and tailored solutions. As these technologies continue to evolve, understanding their impact on consumer behavior becomes crucial, particularly in assessing what customers think about these innovations and how this thinking effects their intention to purchase insurance.

1.2 Problem Statement

Despite the increasing adoption of AI in insurance, there is limited understanding of how customer perceptions of AI-driven services impact their intention to purchase insurance. This study aims to address this gap by investigating the effects of these perceptions on purchasing intentions. Specifically, the research seeks to answer the following questions:

1. Do customers' thoughts and feelings about AI-based insurance services affect their decision to buy insurance? If yes, how directly does this happen?
2. Can the ease of using AI services help explain how customer opinions influence their interest in buying insurance?
3. Does the usefulness people see in AI services play a role in how their opinions shape their decision to purchase insurance?
4. What happens when both ease of use and usefulness are looked at together? Do they explain the link between customer opinions of AI services and their decision to buy insurance better than when seen alone?

1.3 Significance of the Study

This study is significant for several reasons. The study will help the stakeholders by helping them understand the factors that affects the purchase intentions with respect to the AI driven

insurance services. Companies can come up with new and innovative ways to target people those who are interested in buying AI driven insurance services.

The focus of the study is also on knowing whether the perceived usefulness and ease of use mediates the relationship between customer perception and their intentions to purchase. The study will also help Insurers in improving their services.

2. Literature Review

2.1 Existing Research

The decision-making process of consumers, particularly millennials, in the context of purchasing insurance has been extensively studied, with various factors identified as significant influences.

Customer Perceptions of AI-Driven Services: Previous research indicates that the integration of AI in service delivery can significantly impact consumer perceptions. Studies by Gursoy et al. (2019) and Huang & Rust (2018) have shown that AI-driven services, such as chatbots and automated systems, improve efficiency and customer satisfaction. Studies show that customers like how fast, accurate, and always-available AI services are, and these things can influence their decision to buy insurance (Venkatesh & Davis, 2000).

Perceived Ease of Use: Perceived ease of use simply means how easy something is to use. In the Technology Acceptance Model (TAM), Davis (1989) explained that if people find a new technology simple to use, they are more likely to accept it. Later, Venkatesh and Davis (2000) also found that when something feels easy, people are more willing to try and use it.

Perceived Usefulness: Perceived usefulness is about how helpful people think the system is. It's the belief that using it will make their work or task better or easier (Davis, 1989). If people see value in a system, they're more likely to use it. Studies by Venkatesh and Bala (2008) and Gefen et al. (2003) emphasize that perceived usefulness directly influences technology acceptance and user satisfaction.

Mediating Effects of 'Perceived Ease of Use' and 'Perceived Usefulness': Several studies have examined the mediating effects of these two on the relationship between customer perceptions and their behavioral intentions. For instance, research by Hong et al. (2017) and Kim et al. (2008) found that these mediators play crucial roles in the adoption of digital banking services, which can be extrapolated to the insurance sector.

2.2 Research Gap

Despite the extensive body of literature on technology adoption and consumer behavior, there are notable gaps that this study aims to address:

1. **Comprehensive Analysis:** Most existing studies have examined the factors influencing insurance purchasing decisions in isolation. There is a lack of comprehensive research that simultaneously analyzes the combined effects of customer perceptions, perceived ease of use, and perceived usefulness on insurance purchase intentions.
2. **AI-Driven Services in Insurance:** While there is significant research on AI adoption in various sectors, specific studies focusing on AI-driven services in the insurance industry are limited. This study seeks to fill this gap by providing detailed insights into how AI-driven insurance services influence consumer behavior.
3. **Mediating Role of 'Perceived Ease of Use' and 'Perceived Usefulness':** While these two ideas—how easy something is to use and how useful people think it is—have been studied before, their specific role in the link between AI-based insurance services and people's decision to buy insurance hasn't been looked at much. This study will try to fill that gap by focusing on how these two factors explain the effect of customer views on their intention to purchase.

2.3 Theoretical Framework

This study is built on a few well-known theories that help explain why people accept or reject new technologies.

Technology Acceptance Model (TAM): Davis (1989) came up with TAM to explain how people decide whether or not to use new technology. It says that two things really matter: how easy the technology feels to use, and how useful it seems. If people find something simple and helpful, they are more likely to accept it.

People make decisions based on what they think, what others expect from them, and how much control they feel they have. This is what the Theory of Planned Behavior, given by Ajzen in 1991, talks about. In this study, it helps explain how someone's views about AI—whether they find it useful or easy to use—can shape their decision to buy insurance or not.

Diffusion of Innovations Theory: Then there's the idea of how new things spread. Back in 2003, Rogers explained that some people like to try new technologies early, while others wait to see how things go. Over time, more and more people adopt it. This idea, called the Diffusion of Innovations Theory, helps us understand how AI tools in insurance might catch on, especially among those who are comfortable with technology.

Perceived Risk Theory: Also, when people feel unsure or think there's a chance something might go wrong, they hesitate. That's what the Perceived Risk Theory talks about. It was brought up by Bauer in 1960 and later discussed by Cunningham in 1967. This is important here because some people might be nervous about using AI for something as serious as insurance. They might wonder if it's safe or reliable enough.

By using all these ideas together, the study wants to get a full picture. It looks at how people feel, what they believe, and what might stop them from choosing AI-based insurance. This way, we can better understand what pushes someone to accept or reject this new way of getting insured.

3. Description of Topic

The topic of the study will be "Customer Perceptions of AI-driven Insurance Services and their impact on Insurance Purchase Intentions". The study will help us explore whether the perception of consumers with respect to the AI driven Insurance services affects their purchase intentions to buy Insurance.

4. Objectives of the Study:

1. *Objective 1:* To measure the direct effect of ‘customer perceptions of AI-driven insurance services’ on their ‘intention to purchase insurance’.
2. *Objective 2:* To examine how ‘perceived ease of use’ mediates the effect of ‘customer perceptions of AI-driven services’ on their ‘intention to purchase insurance’.
3. *Objective 3:* To assess how ‘perceived usefulness’ mediates the impact of ‘customer perceptions of AI-driven services’ on their ‘intention to purchase insurance’.
4. *Objective 4:* To analyze how both ‘perceived ease of use’ and ‘perceived usefulness’ together mediate the relationship between ‘customer perceptions of AI-driven services’ and their ‘intention to purchase insurance’.

5. Research Methodology

5.1 Research Design

In this study, a **descriptive research design** will be used to investigate how people feel about AI-powered insurance services and how these feelings might influence their decisions to buy insurance. The study will aim to describe and understand customer perceptions in detail. It will look at how customers view the usefulness and ease of using AI driven Insurance services. These two factors—ease of use and usefulness—will be studied to see if they help explain the link between what customers think about AI driven insurance services and their willingness to purchase insurance. By using this design, the research will carefully describe the patterns, relationships, and insights that emerge from the data. This approach will help the researcher stay focused on the real experiences and opinions of customers.

5.2 Data Collection Methods

Data for this study will be collected using structured surveys. The survey will include standardized questions designed to measure the latent variables: Customer Perceptions of AI-Driven Services (CP-AI), Insurance Purchase Intentions (IPI), Perceived Ease of Use (PEU),

and Perceived Usefulness (PU). The survey items will be based on validated scales from previous studies to ensure reliability and validity.

The survey will be administered online to reach a broader audience and to facilitate data collection from a diverse sample. Participants will be asked to rate their agreement with various statements on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

5.3 Sampling

A non-probability sampling technique, specifically **purposive sampling**, will be utilised to select participants who are relevant to the research objectives. The target population includes consumers who have experience with AI-driven insurance services or are potential customers of such services.

The sample size will be determined based on the requirements of Partial Least Squares Structural Equation Modeling (PLS-SEM). According to Hair et al. (2017), a minimum sample size of 100 to 200 is recommended for PLS-SEM analysis.

Using Cochran's formula, a minimum sample size of 385 participants has been calculated to ensure the findings are statistically meaningful.

Therefore, data will be collected from at least 385 respondents to ensure adequate statistical power and robustness of the results.

5.4 Data Analysis

The data will be analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). This technique is suitable for analyzing complex relationships between multiple variables and for assessing the mediating effects of 'perceived ease of use' and 'perceived usefulness'.

The analysis will involve several steps:

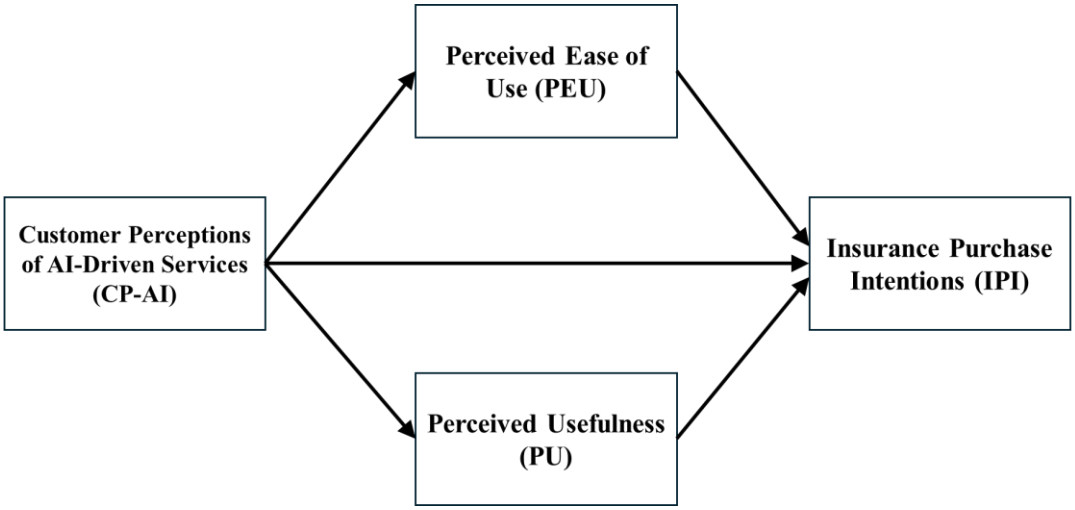
1. **Measurement Model Assessment:** The reliability and validity of the constructs will be evaluated using Cronbach's alpha, composite reliability, and average variance extracted (AVE).
2. **Structural Model Assessment:** The hypothesized relationships between the constructs will be tested using path analysis. The significance of the direct and indirect effects will be assessed using bootstrapping procedures.
3. **Mediation Analysis:** The mediating effects of perceived ease of use and perceived usefulness will be examined to understand their role in the relationship between customer perceptions of AI-driven services and insurance purchase intentions.

5.5 Model Components

Latent Variables:

1. **Customer Perceptions of AI-Driven Services (CP-AI)**
    - Indicators: Perceptions of chatbots, automated claims processing, AI-driven recommendations, etc.
2. **Insurance Purchase Intentions (IPI)**
    - Indicators: Likelihood to purchase, willingness to buy, intention to explore insurance options, etc.
3. **Perceived Ease of Use (PEU)**
    - Indicators: Usability of AI-driven services, ease of interaction, learning curve, etc.
4. **Perceived Usefulness (PU)**
    - Indicators: Effectiveness of AI-driven services, benefits perceived, value addition, etc.

5.6 Conceptual Model:


Perceived Ease of Use (PEU)
Customer Perceptions of AI-Driven Services (CP-AI)
Insurance Purchase Intentions (IPI)
Perceived Usefulness (PU)

Hypothesized Direct Relationships

H1: 'Customer perceptions of AI-driven insurance services' positively influence their 'intention to purchase insurance'.

Hypothesized Indirect Relationships (Mediation)

H2: 'Perceived Ease of Use (PEU)' mediates the relationship between 'Customer Perceptions of AI-Driven Services (CP-AI)' and 'Insurance Purchase Intentions (IPI)'

H3: 'Perceived Usefulness (PU)' mediates the relationship between 'Customer Perceptions of AI-Driven Services (CP-AI)' and 'Insurance Purchase Intentions (IPI)'

H4: 'Perceived Ease of Use (PEU)' and 'Perceived Usefulness (PU)' jointly mediate the relationship between 'Customer Perceptions of AI-Driven Services (CP-AI)' and 'Insurance Purchase Intentions (IPI)'

6. Expected Outcomes

6.1 Potential Findings

1. **Direct Effect on Purchase Intentions**
    - **Expected Result**: A positive relationship between customer perceptions of AI-driven insurance services (CP-AI) and insurance purchase intentions (IPI).
    - **Implications**: This would suggest that customers who have favorable views of AI-driven services are more likely to intend to purchase insurance. Insurance companies might leverage AI technologies to enhance customer perceptions and increase sales.
2. **Mediating Role of Perceived Ease of Use (PEU)**
    - **Expected Result**: Perceived ease of use will mediate the relationship between CP-AI and IPI.
    - **Implications**: Demonstrates that the simplicity and usability of AI-driven services are crucial in transforming positive customer perceptions into actual purchase intentions. Insurance companies should focus on improving the user-friendliness of their AI interfaces.
3. **Mediating Role of Perceived Usefulness (PU)**
    - **Expected Result**: Perceived usefulness will mediate the relationship between CP-AI and IPI.
    - **Implications**: Highlights that the practical benefits and effectiveness of AI-driven services are essential for influencing purchase intentions. Making the benefits of AI clear and easy to understand in marketing can help attract more customers. When people see real value in AI tools and find them easy to use, they're more likely to show interest.
4. **Combined Role of Ease of Use and Usefulness**
    - This study expects that both "perceived ease of use" and "perceived usefulness" will work together to explain how customer views of AI affect their decision to buy insurance. This means both are important. If either is missing—if the system is useful but too hard to use, or easy but not very helpful—it might not

change a customer's mind. So, insurance companies should aim for AI tools that are simple and genuinely helpful.

6.2 Contribution to Knowledge

1. **Advancement of AI Adoption in Insurance**
    - This research will give real-world evidence showing how AI tools affect what customers decide. It fills a gap by showing both the direct and in-between steps (like usefulness and ease) that link AI and buying decisions in insurance.
2. **Insight into Mediating Factors**
    - By studying how ease of use and usefulness work as mediators, this study brings a deeper view to the Technology Acceptance Model (TAM). It applies these ideas in a fresh setting—AI in insurance—where not much has been explored yet.
3. **Strategic Implications for Insurance Providers**
    - The results can help insurance providers know what really matters to customers. If they design AI that's both helpful and easy, customers may feel more comfortable and confident, which could lead to more purchases and better customer relationships.
4. **Framework for Future Research**
    - This research also creates a model and approach others can follow. Using tools like PLS-SEM and the tested indicators, future researchers can look at AI use in other service sectors. It opens a door for more detailed studies in the future.

This study not only aims to predict customer behavior in response to AI-driven insurance services but also helps in understanding the psychological and practical factors that drive this behavior, thereby contributing significantly to both theory and practice in the fields of marketing and technology management.

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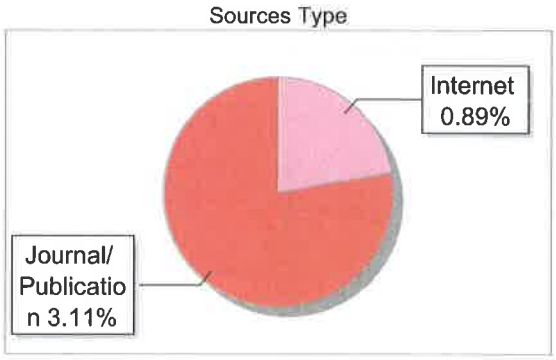

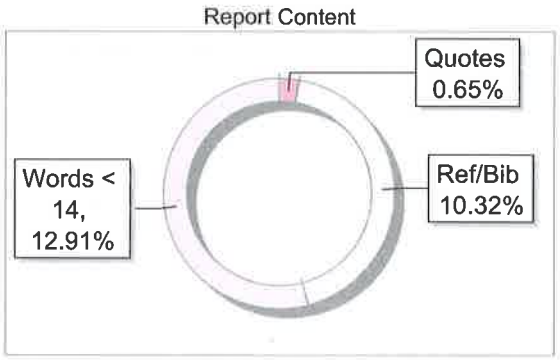

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